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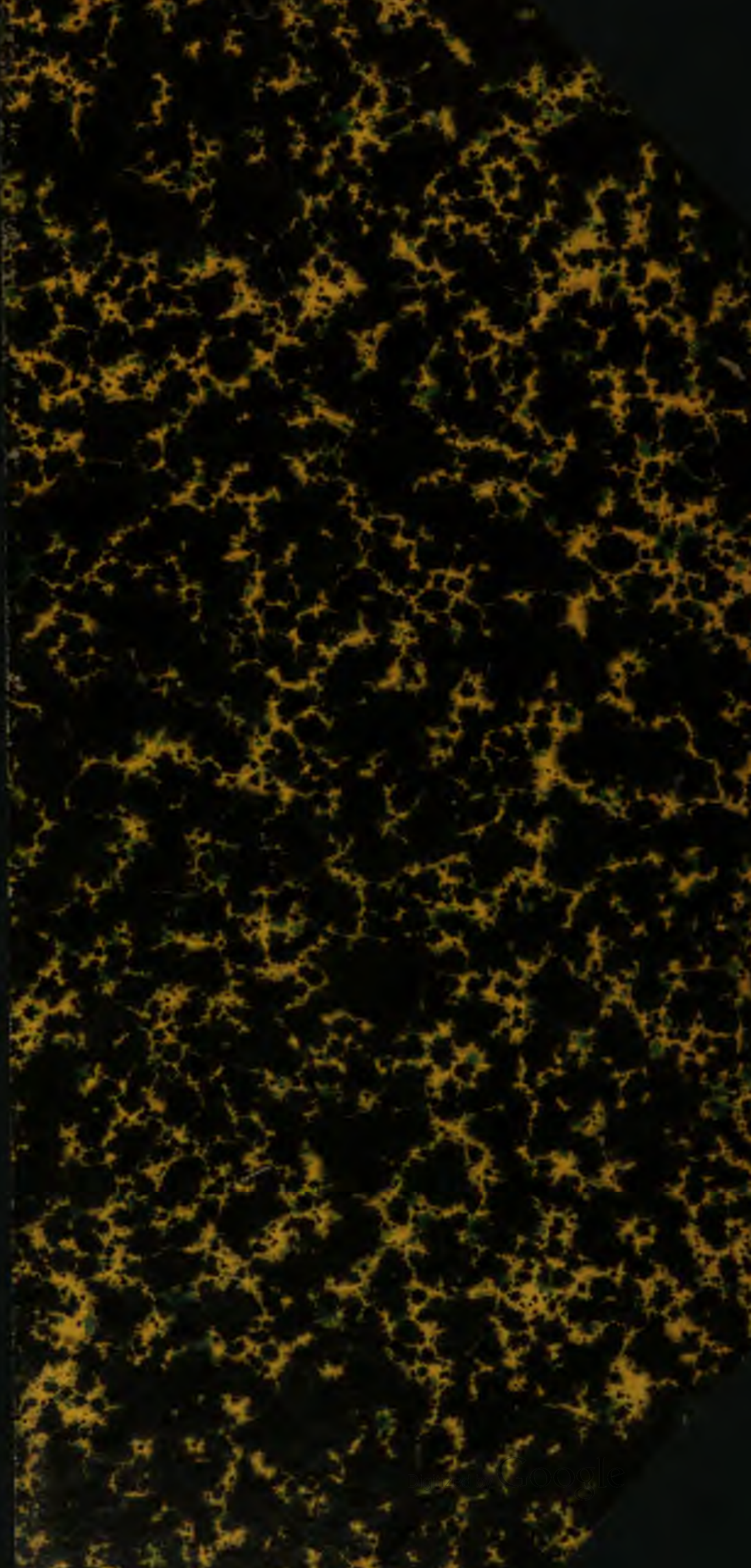

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Volume VI

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CONTENTS

CONTRIBUTED ARTICLES.

An Odd Distribution of Common Plants.............
.... *Dr. W. W. Bailey* 41
Botany for Beginners, *Willard N. Clute* 4, 24, 45, 64, 86, 108
Botany, The Study of .... *Tinnie Wheeler* 10
Flower Show on the East Side, New York, ...
..............................*Pauline Kaufman* 83
Gentian, The Young Fringed .... *J. Ford Sempers* 2
Hercules Club .... *A. S. Foster* 6
In Pennsylvania Woodlands .... *Bessie L. Putnam* 62
Pond Lilies .... *Dr. W. W. Bailey* 81
Railroad Botanizing .... *Willard N. Clute* 101
Roses, Wild .... *Dr. W. W. Bailey* 61
Shittimwood .... *A. S. Foster* 47
Solanus, Southern California .... *M. F. Bradshaw* 21
Stone Walls of New England ...... *Dr. W. W. Bailey* 1
Trillium, The Dwarf White .... *H. A. Gleason* 43
Tongues in Trees .... *Dr. W. W. Bailey* 105
Willows, Pussy and Otherwise ..... *Dr. W. W. Bailey* 23

REPRINTED ARTICLES.

Hybridizing Plants 111
Leaves 112
On the Present Confusion in the Names of American Plants 28
Peculiar Plant Names 8
Plants with Extra-floral Nectaries and other Glands.. 48
Romance of the Lotus, The........................ 89
Shamrock Folk-lore, Some.......................... 27
The California Big Trees 52
EDITORIAL 18, 38, 58, 78, 98, 118
BOOKS AND WRITERS 20, 120

NOTE AND COMMENT.

Actinella acaulis 96
Adder's-tongues, The 75, 91
Anemone Caroliniana 93
Arbutus, Autumn-flowering.... 36
Bacteria Given Away 54
Bagasse as Paper Stock 53
Ballast Ground Plants 37
Bees and the Cattle-men 56
Betula 94
Blue Gum, Use of 17
Botanical Garden A New 37
British Peculiarity, A, ... 91
Carrot,Wild, The Sterile Flower in 34
Chewing Gum. Milkweed 77
Colors Among Flowers, Rare 116
Compost Flower-pots 77
Coralorrhiza innata 76
Deciduous leaves 66
Dog Fennel 93
Elder, Extra-floral Nectaries of, 97
Eucalyptus in Medicine........ 33
Fern Rhizomes, New Use for .. 15
Ferns Variations in British... 17
Flowers that Afford Light..... 55
Flowers that are not Flowers.. 71
Food of the Quail 116
Freezing and Plant Growth.... 12
Fungi, Insects as an Aid to....117
Fungi Became Parasites, How 90
Glandular Hairs in Teasel ... 76
Grape Ferns, Rare Ohio 35
Grape Fruit 95
Hair-cap Moss, Fruiting Season of the 36
Hawthorns, The 91
Honey-sickness 55
How Mushrooms Grow 73
Insecticides 75
Latex as a Protection From Insects 35
Liverworts. Gemmae in the ... 34
Jewel-weeds and Frost......... 94
Milkweed Chewing-Gum 77
Mistletoe, Sparrows and 17
Morning Glory, A Tree 15
Morning Glory Trees 77
Nasturtiums, Edible 35
Nectaries Exra-floral, in the Elderberry 97
Nitrification of Soils 57
Nomenclature, Effect of Changes in 71
Nomenclature, More About.....115
Parasites, How Fungi Became.. 90
Pippins 34
Plant Food Tablets 94
Plant Protection, Practical.....117
Potatoes, Expensive 34
Rusts, Life History of the 13
Sandalwood, The 56
Seed Testing, Nature's 115
Seeds are Kept Cool and Rry Why 116
Seeds, The Study of 95
Seeds, Vitality of 55
Shooting Star and Insects 97
Skunk's Cabbage, Early Blooming 14
Soap Tree of Algeria 94
Squashes Fed on Milk 74
Squaw Huckleberry, Color of.. 93
St. John's Bread 14
Stinkhorns, Edible 115
Storing Pollen 54
Teasel, Glandular Hairs in.... 76
Tree Seeds, Vitality of 16
Violet Berry, Origin of a 15
Violet Species 16
Violets, Identifying the 37
Weeds, Medicinal 36
Wildflowers from Seeds 92

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CONTENTS.

STONE-WALLS OF NEW ENGLAND, - 1
Dr. William Whitman Bailey.
THE YOUNG FRINGED GENTIAN, - - 2
J. Ford Sempers.
BOTANY FOR BEGINNERS—IX, - 4
HERCULE'S CLUB, - - - - - - - 6
A. S. Foster.
PECULIAR PLANT NAMES, - - - - 8
THE STUDY OF BOTANY, - - - 10
Tinnie Wheeler.
NOTE AND COMMENT, - - - - 12-17
EDITORIAL, - - - - - - - - 18
BOOKS AND WRITERS, - - - - - 20

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WILD ROSES.

BY DR. WILLIAM WHITMAN BAILEY.

NO one can think of wild roses without recalling the beauty and innocence of youth. They grow beside the highways of our childhood; they bloom throughout the literature of our race. The songs of minstrels and troubadours are gay with them; they gave their names to the wars in which Falstaff was a soldier; they ornament the verses of all the poets. The sweet moss-rose and the eglantine sing themselves into memory. Much as we love the queen of the gardens, it is the rustic rose, after all, that dwells in our hearts.

The nearer we approach the seashore, the larger and more showy do they become. Even cultivated roses succeed better near the coast. The swamp-rose (*Rosa Carolina*) is our most common kind. It has from five to nine dull green, finely toothed leaflets, usually narrowly oblong and acute at each end, dull green and soft hairy beneath. There are no resinous glands and but few scattered prickles. This shrub has a wide range, from Nova Scotia to Florida and west to Minnesota.

Another species, *Rosa lucida*, has coarsely toothed, dark green leaflets, smooth and often shining above; flowers either solitary or in clusters. It has short and more or less hooked spines. Our roses love to grow in copses and clumps. The time to see them in their glory is in the morning. If one wishes to have them bloom in the house, he must pluck them in the bud in the late afternoon. The open flowers are very evanescent.

> "The rose that lives it's little hour
> Is prized above the sculptured flower."

Rosa blanda is another species found in New England, it if one cannot admire. *N. Bigelovii* is a visced ill smelling herb growing in waste places near the dry creek bed and even occasionally on the sides of the hills. The flowers are white. with an inch long tube and rotate corolla an inch in diameter.

One of the most curious of our native plants is *Lycium Californicum.* It looks like anything but a *Solanum* for it is a thorny, low-growing bush with branches and long slender spines so closely interlaced as to form an impenetrable thicket. Most of the year this bush is leafless and appears to be dead, and it is my opinion that it does continue year after year in this nude state.

But one spring I found a bush with a few leaves and flowers; leaves fleshy and about the size and shape of a grain of wheat, flowers small, white with four lobes to the rotate corolla instead of five. It grows on the edge of the cliff overhanging the sea, and I have never seen it elsewhere.

Last and least is *Petunia parviflora.* I had been told to watch for this wee flower but had no idea where to look or in what season. One day in late summer last year I sat for a whole afternoon on the dry and yellow grass under an elder tree sketching. It was in a rather wide part of a canon and near a small pond, yet so dry that even the pond had dried up. It was only when I was gathering up my things to go home that I saw close to the earth a tiny plant with crimson flowers. I hastily gathered a handful as it was nearly night, and not until next day gave them another look. Then they were badly withered but patience was rewarded presently in my discovering I had not one but two rare plants: *Petunia parviflora* and *Verbena bracteosa.* The blossoms were minute and neither plant had branches over three inches long, both growing prostrate.

Orange, California.

WILLOWS; "PUSSY" AND OTHER.

BY DR. WILLIAM WHITMAN BAILEY.

NATURE is especially fond of tassels. With them she clothes many of her noblest trees. In late May we see sturdy oaks decked out with pendant catkins; in July the grand chestnut bursts forth into jets and fountains of creamy bloom. Birches, hazels, alders, poplars, hornbeams, willows—all have tassels.

The amentaceous trees usually have the two kinds of flowers separated either on different parts of the same plant, as in alders, or on perfectly distinct plants, as with willows. In other words, willows are distinctly male and female. When in bloom we learn to know them apart even at a distance; the female trees bear more greenish catkins. Close examination shows, too, the flask-like pistils standing in the axils of silky scales. These compose the cluster. If now, we look at the male flowers on another shoot, we find each flower to comprise a scale and two stamens. Neither kind has either calyx or corolla, but both develop abundant honey, and bees come for it from afar.

The term "pussy" does not apply *par excellence*, to any particular willow. Several produce the silky clusters so suggestive of little kittens. As harbingers of spring they are loved by everybody. They will vary much in size according to the species. Sometimes they are large and dark, and when about to bloom, are shot through with flashes of deep red and gold.

Scott sings of the "wild and willowed shore," and he associates willows with stream and river banks; perhaps, also, with grave-yards and old fashioned tomb-stones. The weeping willow, (*Salix Babylonica*) has long been a symbol of continuous grief. Dr. Gray used to say that if this was the Babylon willow, it "must have been a Jew's-harp that was hung upon it." The branches are, indeed, extremely brittle.

We recall here the death scene of Ophelia, and the willow which "grows aslant a brook, that shows his hoar leaves in the glassy stream." What close observation here! It is only the under sides of these leaves that are hoary.

Willows are so numerous that if it were possible to grow them all together, a specimen of each, they would alone form a forest, the individuals showing marked peculiarities of height, habit and foliage. Some high mountain species are very small, and spread out flat, hugging the rocks. Again, a willow may be a large and handsome tree. The limit of range, then may be, from a few inches to sixty or more feet. They are north temperate plants more particularly. One is said to grow nearer the North Pole than any other woody plant. The willows of Scripture some consider to be the oleander, which, of course, is not a willow at all. Either there have been faults in translation, or one term covers quite diverse objects.

Willow bark is stringy and tough, and has a bitter taste imparted by the alkaloid salicin. The wood is soft, smooth and light, and used for many purposes. Some species are employed in basket making, and in Lapland and Norway the leaves are even cured and used for fodder. They are smoked, too, at times, as a very poor substitute for tobacco. Salicin has been employed in ague to replace quinine. It is also used in rheumatism. All the species contain it, a good thing to know, perhaps, in malarial regions. The common name of Sallow, better known abroad, is a corruption of the Latin *Salix*. The poplars, including the cotton-wood and Balm-o'-Gilead, are near relatives of the willows.

Brown University, Providence, R. I.

BOTANY FOR BEGINNERS—X.

LEAVES.

The leaves of plants are so familiar that it would be useless to describe them. It may be said in passing, however, that they are the most useful organs the plant possesses for they are both lungs and stomach to it. While the plant gets water by means of its roots, the great bulk of its food is obtained by the leaves from the gases of the atmosphere and by means of sunlight combined to form the substances found in its tissues. These combinations are effected in the green substance of the leaf, therefore all plants that elaborate their own food must have either green leaves or something to take their place. This is plain in the cacti and scouring rushes (*Equisetum*) both of which have functionless leaves and so must rely upon the green in the stems for elaborating their food.

It must not be supposed, however, that the leaf is merely the expanded green portion, or *blade*. This is the most important part, it is true, but there is also frequently to be seen a leaf-stalk or *petiole* and at the base of the petiole where it joins the stem two little leafy or scale-like objects called *stipules*. In many plants the stipules are not present and in some they are so changed as to scarcely be recognizable. In the smartweed family (*Polygonum*), the papery sheaths that encircle the stem where the leaves join it are derived from stipules. Sometimes the petioles, also, are wanting in which case the leaves are said to be *sessile*.

The shape of the leaves and their arrangement on the stem plays an important part in the identification of species. Fortunately the terms used in describing leaves are in common use. Such words as round, oblong, ovate, lanceolate and linear mean the same when applied to leaves as they do applied to other objects. *Oblanceolate* and *obovate* mean simply the reverse of lanceolate and ovate; that is, in ovate or lanceolate leaves the blade is broadest near the base where it joins the petiole, while in the others it is broadest at the apex. If the tip of the leaf is rounded it is *obtuse*; if pointed, it is *acute*; if the tip is long and suddenly narrowed, it is *acuminate*; if it ends in a hard point it is *cuspidate* or *mucronate*. The base of the leaf also has names to distinguish its outlines. If the margins curve inward to join the petiole the base is *cordate* as in the morning glory; if these basal lobes are long and pointed it is *sagittate* as in the arrow-head (*Sagittaria*); if the lobes are at right angles to the rest of the blade it is *hastate* as in the tear thumb (*Polygonum*). If the margins of the leaves are without notches of any kind it is *entire*; if notched like the teeth of a saw it is *serrate*; if the teeth are rounded it is *crenate*. There are a large number of terms to indicate other slight variations from the forms above named, but as they are all defined in any good dictionary and in every botanical glossary, the beginner need not bother his memory with them. It is time enough to hunt them up when he needs them. A few weeks in the work of identifying plants will make him familiar with all the terms in common use.

The texture of the leaf has a special terminology scarcely less extensive than that of the outline. If it is perfectly smooth it is *glabrous;* if it is covered with fine soft hairs it is *pubescent;* if the hairs are longer and stiffer it is *hirsute;* if the hairs are very thick and matted as in the common mullein it is *tomentose*. Very thick leaves are *coriaceous* or leathery; thin ones are *membranaceous* or membrane-like; *papyraceous* leaves are about like ordinary paper. Here again the novice need not borrow trouble by learning the many other terms.

A large number of plants have leaves composed of many smaller blades called *leaflets*. Examples may be found in the wistaria, bean, pea, strawberry, potentilla, etc. These are called *compound* leaves. When the leaflets are arranged along the main stalk or *rachis* the leaf is said to be *pinnate* as in the locust (*Robinia*) and the rose. When arranged as in the clover they are *ternate* or *trifoliate*. In the parsley and ginseng families the leaflets are often again sub-divided. Ranging from the *tri-pinnate* leaves of Hercule's club (*Aralia spinosa*) to the entire leaves of the heaths there are all sorts of gradations. If the leaves are very deeply divided but not quite pinnate, they are *pinnatifid* or if less deeply divided they may be only *lobed* as in the maples. In addition to the pinnately compound leaves, there are others in which the leaflets are all arranged at the top of the common stem, instead of along the side. Such leaves are *palmately compound*.

Among good examples may be mentioned the horse-chestnut and the lupine.

SOME SHAMROCK FOLKLORE.

"The sweet little, green little shamrock of Ireland" is perhaps next to

"Sublime potatoes that from Antrim's shore
To famous Kerry form the poor man's store,"

the most universally popular plant in the world to-day, for while the latter may be the more widely known and most useful to all nations, the former holds an unique place in the realms of sentiment; and among people of Celtic and Saxon origin is regarded with the warmest affection as emblematic of all that is charming and lovable in the Irish character—a character which blends

"Three God-like friends
Love, valor, wit, forever."

A great deal has been written as to what is the real plant meant by the shamrock and as a rule most of the commentators start out with St. Patrick who used a three-leaved plant satisfactorily to explain to the early converts of Christianity the trinity in unity. The trefoil plant, however, was held sacred long before that, as can readily be gathered from the fact that shamroc and shamrakh is Arabic for the trefoil and the plant was held sacred in Iran and was emblematic of the Persian triad long before St. Patrick's day. Mr. Bicheno and others have held that the wood sorrel (*Oxalis acetosella*) is the true shamrock while Dr. Withering and Professor Rennie named the white clover (*Trifolium repens*) and London claimed the black medic (*Medicago lupulina*) as the true Irish emblem. Mr. Croker (not he of Tammany) points out, however, that as far back as 1689 the Irish themselves considered sorrel and shamrocks as entirely distinct. The "Irish Hudibras" printed in 1689 says,

"Springs, happy springs adorned with sallets,
Which Nature purpos'd for their palats;
Shamrogs and watercress he shews
Which was both meat and drink and clothes."

And again the Irish are there represented as

"Without a rag, trouses or brogues
Picking of sorrel and sham-rogues."

In another ancient Irish poem, the "Hesperi-neso-graphia" the following passage occurs:

"Besides all this, vast bundles came
Of sorrel more than I can name,
And many sheaves, I hear there was
Of shamrocks and of water grass
Which there for curious salads pass."

Keough, Threlkeld and other Irish botanists assert that *Trifolium repens* or white clover is the true Irish shamrock and will have nothing to do with "that little, sour, puny plant, the wood sorrel." On the whole the weight of evidence seems to be with the white clover and it may not be out of place to whisper here to those conscientious deacons and other experts that the seeds of *Trifolium repens* that are for sale at any seed store in America at 25 cents a pound are just the same as the humorous Irishman charges them $2.00 a pound for.—*From an Article by Geo. C. Watson in Gardening.*

ON THE PRESENT CONFUSION IN THE NAMES OF AMERICAN PLANTS.

Every person seriously interested in botany has suffered inconvenience from the confusion now prevailing in the nomenclature of American plants, It arises from the existence in this country of two schools of nomenclature employing different systems in their treatment of the older names of plants. If one compares representative books of the two schools he will find that, aside from other differences, upwards of one-third of the names are different in the two works. Some changes of names represent real scientific advances and hence are unavoidable, but the great majority of changes made in recent years result merely from a difference of system, and hence would be avoided if the workers in this field could come to an agreement. It is difficult for those not specialists in classification to understand the merits of so complicated a question, and most persons, having in mind the wonderful advances being made in science, are apt to suppose that anything new represents an advance, and hence they accept it without further inquiry. It is true that the newest things in science usually are the best, but this is by no means necessarily or always so; and in the present case, I, for one, am firmly convinced that the newer system is not the best, and that it will not prevail. I shall try to present the subject very briefly as I understand it.

Of the two American schools of nomenclature, the older is that of Asa Gray (and hence well-termed the Grayan School) and of his successors at Harvard. The widely-used Gray's Manual, with nearly all American botanical literature prior to ten years ago, and much of it since, is in accord with its principles, which, moreover, are for the most part those in use in the principal botanical centres of England and continental Europe. The newer, or Neo-American School, originated ten years ago with the adoption of a set of rules by a group of American botanists, since which time great industry and skill have been devoted to its propaganda. It is led by the botanists of the New York Botanical Garden, and is most familiar through the Illustrated Flora and the Manual of Dr. Britton, but its distinguishing tenets have not found acceptance outside of America. There are differences between the two schools other than those of nomenclature, but I shall confine myself to this one subject.

Nearly all botanists agree upon the general principle that nomenclature shall be based upon priority of publication beginning with the "Species Plantarum" of Linnæus, of 1753, the first work to use binomial or double names in the modern scientific sense; that is, the first published name for a plant accompanied by a description, in or subsequent to that work shall be recognized as its name. Now if this principle, universally observed for all recent names, could have been rigidly and uniformly acted upon from the beginning, there would now be no nomenclature question to vex us; but unfortunately it was not, and as a result there arose a great body of nomenclature based rather upon usage than upon strict priority. The real issue between the two schools is this: Shall this great quantity of nomenclature be retained, despite the technical flaws in this title, (Grayan School) or shall we now abandon it and attempt to bring all nomenclature into conformity with the principle of priority (Neo-American School)? The reasons for each position, so far as they concern the two most important points involved, are very briefly as follows:

First, it happened often in the past that certain plants were given more than one specific name, and, through misunderstanding of their affinities or other causes, bore one or more generic names before being transferred to the genus now recognized as scientifically correct. The ques- now arises, shall we adopt as the name of that plant (a) the first combination of generic and specific names the plant bore when finally placed in its correct genus, or (b) an addition of the very earliest discoverable specific name applied to the species to the name of its correct genus? The former can be justified in principle on the ground that a scientific name is primarily a *combination* of generic and specific names, and that hence the first *correct combination* is the true prior name of that plant, while in practice it has the advantage of giving a more definite and readily traceable starting point for the names, and it helps to retain a large part of the existent nomenclature of American plants. This is the position of the Grayan School, and of the workers at Kew in England; in practice it is known as the Kew rule. The other school acts on the principle that a scientific name is not primarily a combination of generic and specific names but rather a specific plus a generic name, and that the first specific name ever given to a plant should be retained for it no matter what its subsequent fate as to transfer from genus to genus. It must be admitted that there is much theoretical reasonableness in this position; and it is taken not only by the Neo-American School, but has long been acted upon by most of the botanists of Continental Europe. Its practical disadvantage in this country is that it both entails marked changes in the existent nomenclature of American plants, and also, as will be noted later, is impossible of exact application. It is a fact, however, that the Neo-Americans give this principle an extension far beyond that followed by any of the continental botanists.

Second, it happened in early Post-Linnæan days that the names first given to Genera very often became replaced by others, either because the later botanists did not know of the earlier names, or because they thought the earlier names not well considered or properly published, or for various other reasons; and thus the later generic names very often became firmly fixed in botanical nomenclature. The Grayan School holds that in such cases the well-established name is to be retained, even though of later date, and in this they are in agreement with all the leading botanical workers of England and Continental Europe. Since many puzzling questions have arisen as to just where the line should be drawn between those names which should be displaced for earlier ones and those which should not, the Berlin botanists adopted a rule, known as the Berlin rule, now followed by most botanists except the Neo-Americans, that any generic name which failed to achieve acceptance for fifty years after its publication should not now be revived to displace a name which has become well fixed. The practical effect of this rule is to retain the great body of existent nomenclature. The Neo-American School, on the contrary, holds that the very earliest name given to a genus should be restored, regardless of whether or not they have been used in the meantime. The application of this rule necessitates an immense number of changes, and to it more than to any other cause is the present confusion in nomenclature due. The Neo-Americans, however, have not been able to win the support of any of the English or Continental botanists, and they stand quite alone in their application of it.

The difference between the two schools then lies primarily in this, that while both accept priority as the basal principle, the one school maintains that, so far as the past is concerned, this is to be applied with judgment, and in such a way as to cause a minimum of inconvenience by retaining the great body of existent nomenclature; the other school holds that priority should be applied rigidly and absolutely to all names, judgment being allowed no place in the system. In defence of their position the Neo-Americans hold that finality in nomenclature is not possible under the Grayan system, because, where judgment is given a place, there will be differences of opinion and hence instability, while they claim that under the absolute priority system final stability is possible. They admit that the application of absolute priority will cause much inconvenience through the abandonment of so much of the existent nomenclature, but they hold that the final advantage of stability will more than compensate for the temporary inconvenience. Now as to these positions two things are to be said. First, the Grayan School has met the difficulties as to instability due to individual differencce of opinion by the adoption of the Kew and Berlin rules, which give as absolute and definite a basis for their system as absolute priority gives to that of the Neo-Americans, while their system retains most of the existent nomenclature where the Neo-American system abandons it. Second, priority applied absolutely, and excluding the instability due to differences of opinion or judgment, is proving impossible of application. In many cases it is impossible to tell which of two names for a given plant is the oldest, since early publications are often not dated or bear dates known to be wrong; in other cases it is impossible to tell to which of several species or genera a given early very generalized description applies; and in other cases it is impossible to say whether certain names are not inadmissable through the brevity, indefiniteness, errors or obscurity of their publication. In all these and many other cases, judgment does come into play, and with it differences of opinion and instability. That this is the case is shown by the fact that the members of the Neo-American School do not always agree among themselves as to the names which should be chosen under their own system. Furthermore, the Neo-Americans do not make all the changes in nomenclature which their system requires, which indeed they admit, but confess in explanation that the number of changes thus entailed would be too appalling. Now the Neo-American School has but a sole claim to consideration as compensation for the immense inconvenience to which it is putting the public by its many changes, and that is, that it will give finally an automatically stable system. But this they are not succeeding in doing, and there appears to me no prospect that the nature of the subject will ever permit them to do so. Further, they cannot possibly secure stability by themselves, for there can be no stability as long as the other botanists of the world persist in using a different system. During the ten years of their propoganda, they have not been able to secure a single convert among the prominent workers of other countries. Their system promises no greater stability than the Grayan system, while it causes immense confusion by overturning the great body of existent nomenclature which the Grayan system conserves. This is why I believe all disinterested persons should give their support to the Grayan system.—*W. F. Ganong in Educational Review for January.*

Note and Comment.

Wanted.—Short notes of interest to the general botanist are always in demand for this department. Our readers are invited to make this the place of publication for their botanical items.

Eucalyptus in Medicine.—According to the *Medical Annual* an infusion of the fresh leaves of one ot the blue gums—*Eucalyptus globulus*—is an almost certain cure for diabetes if administered in the first stages of the disease.

PIPPINS.—In the beginning of its history the word pippin meant simply an apple raised from the pip or seed.

EXPENSIVE POTATOES.—British cultivators are suffering from a mild form of mania in regard to potatoes that reminds one of the tulip mania that once spread through Holland. According to the horticultural papers certain fine strains of potatoes are now selling in England at the rate of $500 to $800 a pound! Of course such tubers are too expensive for the table. Their owners would as soon think of eating them as the Dutch would have thought of eating their tulips at the acute stage of the tulip craze. They are reputed to be almost immune from disease and very prolific, hence the great price.

GEMMÆ IN THE LIVERWORTS.—Many liverworts, in addition to the usual method of reproduction by spores, develop large numbers of tiny plantlets, called gemmæ, that fall off and become new plants. Specimens of these can usually be found in any greenhouse. In *Marchantia* the gemmæ are borne in little cups on the upper surface of the plant, while in *Lunularia* they are in crescent-shaped receptacles. When blown from the plant by the wind or washed away by rains, it makes no difference to the young plantlets upon which surface they alight. The surface next to the soil begins to send out rhizoids and thus the plant gradually acquires its dorsi-ventral thallus.

THE STERILE FLOWER IN WILD CARROT.—I have often wondered that in the popular descriptions of wild carrot, (*Daucus carota*) no mention is made of the dark purple sterile flower found in every perfect head of blossoms. Rarely this is lacking, and sometimes it is subdivided into three or four less perfectly formed florets. But usually it may be seen of regular form and as large as or larger than the surrounding perfect florets. I have looked in vain among authorities for the use of this unique variation. Is it not to lure insects to the plant and thus aid in cross-pollination? Certainly a casual glance would not be likely to detect that the abnormal almost black floret was not an insect feasting on sweets.—*Bessie L. Putnam.*

EDIBLE NASTURTIUMS.—Some species of the garden nasturtium (*Tropæolum*) produce edible seeds which are often used when young in salads and pickles. It has recently been discovered that the tubers produced by *Tropæolum tuberosum* are edible also, though the one who did the experimenting reports that he cannot recommend them as palatable.

LATEX AS PROTECTION FROM INSECTS.—In many botanical works it is intimated that the milky juice of plants protect them from the depredations of ants and other crawling insects by exuding from punctures made by their claws and thus holding them fast. The originator of this story evidently imagined that ants are equipped with spurs, and climb the weed stalks much as electric linemen ascend telegraph and telephone poles. Possibly in a very few cases the epidermis may be punctured by insects crawling over it, but one only need watch for a short time, such plants as milkweed, dog's-bane and dandelion, to know that they are not so punctured. It is said that the prickly lettuce is protected in the way indicated. Will someone investigate and report?

RARE OHIO GRAPE FERNS.—Mr. Almon N. Rood reports the finding of both the matricary grape fern (*Botrychium matricariæfolium*) and the lance-leaved grape fern (*B. lanceolatum*), near Garrettsville, Ohio, last summer. The species are not new to the State flora, but both are so rare in Ohio as to make their discovery important, especially as this is the limit of their southern range in the Central States. Thus far specimens have been found only in Portage county. It is a remarkable fact in connection with these two species that one is seldom found without the other. No theory to explain this has been advanced unless the suggestion regarding the two principal forms of the common grape fern (*Botrychium ternatum*) is applicable. By some it is believed that the one called *obliquum* and the one called *dissectum* are but two phases of the same species and that spores from a single sporangium may reproduce either one.

AUTUMN FLOWERING ARBUTUS.—In *Torreya* for February, S. H. Burnham notes the finding of a patch of trailing arbutus (*Epigæa repens*) that habitually flowers in autumn. The plants were found in 1895 and have since exhibited flowers in September, October or November of every year save three. The arbutus forms its next year's flower-buds in late August, and like many of our other spring flowers, a few of these may open in Autumn instead of spring. To find a large number of plants with a fixed habit in this direction is indeed unique.

FRUITING SEASON OF THE HAIR-CAP MOSS.—The hair-cap mosses (*Polytrichum*) are among our largest moss species and this fact together with their abundance has gained them several common names. In some sections they are known as bear's grass or pigeon wheat. They are very noticable in spring when the spore-capsules are maturing, looking like diminutive pine trees with the capsule on a slender stalk at the top. The question when these spore-cases begin to grow has interested several students and an investigation showed that this moss is most deliberate in producing its spores. According to the *Bryologist* it begins its spore capsules in March or April slowly develops them during the summer, autumn and winter and does not shed its spores until the next August, fully sixteen months after the growth of the capsule began.

MEDICINAL WEEDS.—It will be a surprise to many to learn that the people of the United States annually import millions of pounds of some of our most noxious weeds. These are used in medicine, but it would seem fitting that we "kill two birds with one stone" by using our own naturalized weeds as medicine and at the same time rid the country of them. With the idea of encouraging this the Government has issued "Farmers' Bulletin No. 188," in which some of these weeds are described, with an account of the parts used, manner of collecting and drying and the price paid. The prices are very low, seldom going above eight cents a pound, but when the farmer is digging weeds he can afford to sell them at this price. Of the weeds mentioned in this list the black and white mustards are first, being imported to the amount of more than 5,000,000 pounds annually. Then comes burdock with 50,000 pounds of the root; dandelion 115,000 pounds; couch grass (*Triticum repens*) rhizomes 250,000 pounds; hoarhound 125,000 pounds of leaves; jimson weed (*Stramonium*) 150,000 pounds of leaves, 10,000 pounds of seeds; poison hemlock (*Conium maculatum*) 20,000 pounds of seed and nearly as much leaves. Some of the weeds of which great quantities are used, the supply coming from domestic sources, are mullein, lobelia, poke, boneset, Canada fleabane, catnip and yarrow.

BALLAST GROUND PLANTS.—*The Gardening World* says that nearly 300 species of alien plants were collected in Edinburgh, Scotland, last year mostly along the docks where the seeds had lodged from the sweeping of foreign vessels visiting that port.

A NEW BOTANICAL GARDEN.—According to *Gardening* a botanical garden is to be established at the University of Chicago in which will be tested DeVries' new theory of the origin of species. The new garden is said to have received seeds from DeVries for this purpose.

IDENTIFYING THE VIOLETS.—It is only in recent years that students of our violets have paid attention to the development of the plant during the summer months. In the Synoptical Flora (1895) the specific characters are taken almost exclusively from the plants as they appear when flowering in spring, though the existence of later cleistogamous flowers "abundant and short peduncled" is stated. Even Mr. Pollard, who has distinctly urged the importance of studying the mature plant, is, in his treatment of *Viola* in the recent manuals of Dr. Britton and of Dr. Small, quite vague in his account of the apetalous flowers and their mature capsules. Yet right here are to be found the most marked and constant characters on which to divide the acaulescent blue violets into species. These plants are best understood, as are the cruciferæ and umbelliferæ, *when in fruit.—Ezra Brainard in Rhodora.*

Editorial.

It is with great pleasure that we reprint in this issue Prof. Ganong's article on Nomenclature. After reading this lucid account of the differences between the old and new nomenclatures, our readers may judge whether the preposterous new proposition is worth adopting. It is a significant fact that many who at first were to be numbered among the supporters of the new order of things have since returned to the established nomenclature.

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Although an invitation to readers to send in short notes is kept standing in our Note and Comment department, the number of such notes received is far below the number we would like to receive. We deplore this, not because we need such articles to fill up the magazine, but because the silence of those who can write is depriving all of us of much entertaining information. It is not necessary that your notes are sent to us. Send them to any publication you like; if they are of the right kind, we will promptly reprint them. The main thing is that you write. The trouble with most botanists is that the short notes are usually laid up in the memory in the hope that some day enough others will be secured to make a long article. It will be noticed, however, that when one botanist visits another, neither is likely to talk in long articles. Questions, facts, fancies and opinions are rapidly exchanged and both have a good time. It is the same way in print. Do you not always read the short articles in the botanical magazines first? Indeed this trait is so well known that a certain magazine that begins with long articles and ends with short ones, is said to be always read backward like a Japanese book. The value that attaches to these short notes, then, is sufficient excuse for urging that more of them be written. A postal card gives just about room enough for such a note. When next an interesting fact comes to mind seize the opportunity to record it.

Those who, during the past severe winter, have let their thoughts dwell longingly on the warmth and sunshine of California, Florida and the West Indies, may be advised that the dwellers in these apparently favored regions are not to be thought of with unalloyed envy. They miss the disagreeable weather of winter it is true, but they also miss that most delightful of seasons—the beginning of a Northern spring. And winter itself is not all disagreeable weather. Spring in warm climates is but a deepening of the universal green with an almost imperceptible increase in the number of flowers. The floral year has neither beginning nor end. Anticipation, however, is generally held to be better than realization and this accounts for much of the pleasure gained from the return of spring in the North. Long before a flower is in bloom we may ramble through leafless thicket and plashy pasture and find a myriad indications of the return of a milder season. The Northern spring is not a mere continuation of a blooming season, but the real beginning of a new year. The advent of winter puts an end to all plant growth and aids in making spring the brighter by contrast. By close attention we may discover almost the exact instant when the turning point is reached and thereafter follow every development until the floral riches of April and May are lost in the leafiness of June.

* * *

If you are accustomed to think that you know the flowers you may test the extent of your knowledge in this way: Select the spring flower that you know best and without again examining it, answer the following questions: Is it an annual, biennial or perennial? Does it store up food against the blooming season? How? How is it protected against the cold? Since the seed fall on the surface of the earth, how do the underground parts get so deep in the soil? When are the flower buds formed? How protected? Is the flower pollinated by wind or insects? Does it secrete nectar? Where? What insects visit it? For what purpose do they visit it? What part do the

BOOKS AND WRITERS.

A volume devoted to the Fern Allies and illustrating every species by Willard N. Clute is expected to appear early in 1905. There is no popular manual of this kind to be had at present.

Nature study is to have another publication devoted to its interests. It is announced that *The Nature Study Review* will begin publication in January, 1905, and be issued bi-monthly. Prof. M. A. Bigelow of Columbia University is to be editor and there is an advisory board of half a hundred or more of our leading educators. The price will be $1.00 a year.

"The Garden Diary" is the title of a little book from the press of James Potts & Co. It contains a page for every day in the year with space left for garden and nature notes. At the head of each page is a stanza from one of the British poets, with observations upon the progress of the seasons in England. There is also a page for each month of the year, wherein is set down an account of the festivals and saints days occurring in it. Another page is devoted to the gardening work for the month. Although intended for British readers and dealing with British seasons, fauna and flora, many Americans will be glad to have it for comparison. (New York, James Potts & Co., 1904, 75 cents, *net*.)

Dr. A. J. Grout recently issued the second part of his "Mosses with Hand-lens and Microscope," which carries the work well into the second hundred pages. In paper and typography, the book is a model while the illustrations make it second to none. In the present part there are twenty-five full page octavo plates reproduced mostly from "Bryologia Europæa" and Sullivant's "Icones" and nearly fifty smaller illustrations drawn mainly from the same sources. The text covers the ground from the Dicranaceæ to the Torulaceæ. Dr. Grout is to be especially felicitated upon the excellent taste displayed in the selection and reproduction of the plates. Nothing more helpful to young students has ever been published in America. (New York, Published by the author, $1.00.)

THE BRYOLOGIST with the January, 1904 number begins its 7th year and volume. It is a 16-20 page bimonthly devoted to the study of Mosses. Hepatics and Lichens. It is fully illustrated with new and artistic drawings and halftones. If you are in need of help in the study send $1.10 as dues to the Treasurer, Mrs. Smith, and join the Sullivant Moss Chapter. Subscription price to the Bryologist $1.00 a year. Send for sample copy. In either case address
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